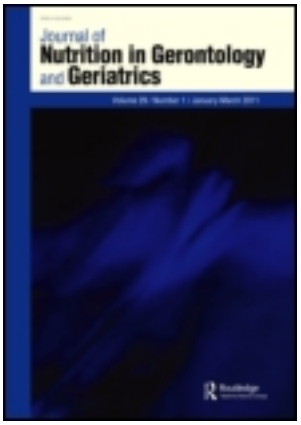

Journal of Nutrition in Gerontology and Geriatrics

Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/wjne21

Food Preferences of Older Adults in Senior Nutrition Programs

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Published online: 05 Mar 2014.

To cite this article: Hee-Jung Song PhD , Judy R. Simon MS, RD, LDN & Dhruti U. Patel MS (2014) Food Preferences of Older Adults in Senior Nutrition Programs, Journal of Nutrition in Gerontology and Geriatrics, 33:1, 55-67, DOI: 10.1080/21551197.2013.875502

To link to this article: http://dx.doi.org/10.1080/21551197.2013.875502

Journal of Nutrition in Gerontology and Geriatrics, 33:55–67, 2014

ISSN: 2155-1197 print/2155-1200 online
DOI: 10.1080/21551197.2013.875502

Routledge
Taylor & Francis Group

Food Preferences of Older Adults in Senior Nutrition Programs

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The Elderly Nutrition Program (ENP) is being challenged to improve the quality of meal programs. The purpose of this study was to explore how food preferences varied depending on gender and ethnic groups. A total of 2,024 participants in the ENP aged 60 years or older were interviewed. A majority of the participants were female (74.7%), served by congregate meal programs (71.7%), with the mean±SD age of 76.9±9.2 years. A general impression of the meals and preferences for 13 food groups (fresh fruit, chicken, soup, salad, vegetables, potatoes, meat, sandwiches, pasta, canned fruit, legumes, deli meats, and ethnic foods) were assessed. After adjusting other variables, older males were significantly more likely to prefer deli meats, meat, legumes, canned fruit, and ethnic foods compared to females. In addition, compared with African Americans, Caucasians demonstrated higher percentages of preference for 9 of 13 food groups including pasta, meat, and fresh fruit. To improve the quality of the ENP, and to increase dietary compliance of the older adults to the programs, the nutritional services require a strategic meal plan that solicits and incorporates older adults' food preferences.

KEYWORDS Elderly Nutrition Program, ethnicity, food preference, gender

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INTRODUCTION

Older adults are the fastest growing segment of the population in the United States. By 2030, about 19% of the U.S. population will be constituted by seniors aged ≥65 (1). With the aging of the population, the health status of older adults has drawn a great deal of attention from health professionals, since their health and nutrition status can result in a significant impact on the U.S. health care systems and social services, including tremendous health care costs. For example, the health care cost for older adults is three to five times greater than the cost of younger groups aged ≤65 (2, 3). Therefore, identifying attributable, but modifiable risk factors related to the elderly health care is a priority. Previous studies have suggested that nutrition status of older adults is one of the key indicators that affects institutionalization, quality of life, functional status, and even survival of older adults (4–7).

The Elderly Nutrition Program (ENP) is intended to improve dietary intake and nutrition status of seniors, while providing socializing opportunities. About three million participating older adults are receiving 40% to 50% of their nutrient requirements through the programs, thus these meal programs become a significant nutritional source for the health of older adult participants (8). The ENPs provide congregate meals in a variety of settings including but not limited to senior centers, senior buildings, churches, and home-delivered meals to eligible older adults. To meet nutritional needs of the older adult population, the programs should follow national nutrition standards such as Dietary Reference Intakes and the Dietary Guidelines for Americans. The benefits of these programs in meeting nutritional and social needs of the older adult population have been proven (9, 10).

Recently, not only the needs of the older adult population for ENP have increased, but the composition of program participants has become diverse. For example, waiting lists for home-delivered meals in ENP indicates increased need of older adults. In addition, by 2030, about 25.4% of the older adult population will be composed of ethnic minorities (11, 12). In response to increased racial and ethnic diversity in nutrition programs, more culturally competent meal services need to be considered (13). Additionally, since poor diet quality is more prevalent among older adults who are women, have low income, and limited education, nutrition programs are being challenged to tailor meal programs to improve nutrient intakes of specific subgroups (14). Providing culturally appropriate or tailored meal programs can be an effective outreach effort to embrace vulnerable groups and to promote the general health status of the older adult population. Understanding food preferences of the older adults is one of the means to improve the quality of nutritional services, and to increase participants' adherence to the programs resulting in improved dietary intakes. The present study was conducted to identify food preferences of ENP participants, to explore whether food preferences vary

depending on gender and race/ethnicity, and to suggest how food preferences can be considered for the improvement of future ENPs.

METHODS

Study Setting and Participants

The present nutrition surveys were conducted and completed by a joint process between the Maryland Department of Aging (MDoA) and local Area Agencies on Aging (AAAs) in which awards of federal and state funds for nutritional service for older adults are made. Seniors and their spouses participating in either the Older American Act Senior Nutrition Program's (SNP) congregate or home-delivered meals program in Maryland were eligible to participate in the survey. Congregate meal sites include group dining in settings such as senior centers, senior housing, churches, and similar community-based buildings and organizations. Home-delivered meals are most often delivered to home-bound seniors by volunteer drivers.

In the congregate meal program setting, participants self-selected to participate in the survey. Surveys were self-administered, and were distributed by nutrition program staff or volunteers and completed at the site, often within a few minutes of the older adult receiving the survey. Home-delivered meal participants received surveys by persons delivering their meals; a meal delivery staff member or volunteer picked up the completed surveys on the following day. Home-delivered meal participants who did not wish or were unable to complete the survey either refused the survey when offered, or did not return the survey to the meal delivery volunteer.

Development of Survey Questionnaire

The MDoA assembled a workgroup in 2011 to revise the existing Menu Standards for Maryland's SNP, which had been last updated in 2006. The survey was developed and reviewed by Maryland's association of SNP membership, both to improve the design and encourage wide participation throughout the state. The survey questions included general demographics such as gender, age, and ethnicity and a total of 11 items were included. Length ("How long have you been participating in the meal program?") and frequency ("How often do you participate in the meal program?") of program participation, venue for the meal program ("Where do you eat your meal?"), and health conditions were collected. Also, general impressions of the meals were assessed in the aspects of taste, appearance, variety, temperature, and portion. The responses were measured using 5-point Likert-type scale (*poor*, *fair, okay, good,* and *great*). To assess food preferences, participants were

asked if they liked a food group or not. Usability with the senior population was trialed at a senior center with self-selected older adults (n=10), and some adjustments were subsequently made to reduce the likelihood of unusable data. Once a completed version of the survey was created, all 19 AAAs were requested to participate in its distribution to their participants and return of the forms to MDoA. A goal of at least 5% of the previous year's participant figures (34,906 and 6,950, respectively, for congregate and home-delivered) was established; this goal was translated to approximately 1,745 congregate and 348 home-delivered meals surveys (n=2,093). Nine AAAs participated and included each geographic area of the state, and involved rural, urban, and suburban areas. A total of 2,024 surveys were completed and returned to MDoA. In general, it was representative of the senior population in SNP although the sample was not randomly selected.

RESULTS

Basic Demographics and General Impression of the Meals

Table 1 presents the basic demographic characteristics of the participants. A majority of the participants were female (74.7%), served by congregate meal programs (71.7%), with the mean±*SD* age of 76.9±9.2 years. More than half (66.6%) of the participants had been in the program less than five years, and 43.8% reported using the program on a daily basis. There was a high prevalence of chronic diseases reported by the participating older adults. The most prevalent chronic disease was arthritis (49.1%) followed by hypertension (40.3%) and diabetes (28.8%). Most (85%) participants had at least one chronic disease, but only 17.5% were on a special diet. Among the total of 2,024 older adults surveyed, 60.9% were Caucasian and 39.1% were African American. A few Asian and Hispanic older adults participated in this study, but they were excluded from the analysis because of a small sample size (1.6%, n=37). Slightly more than half of the participants responded that their general impressions of the meals in these aspects were great or good.

Food Preference According to Race/Ethnicity and Gender

Table 2 shows preferences for the 13 food groups (fresh fruit, chicken, soup, salad, vegetables, potatoes, meat, sandwiches, pasta, canned fruit, legumes, deli meats, and ethnic foods) across race/ethnicity and gender (Caucasian male, Caucasian female, African American male, and African American female). While a majority of the participants presented preferences for fresh fruit (80.1%), chicken (75.5%), soup (74.0%), salad (73.5%), vegetables (72.0%), and potatoes (67.2%), some foods such as legumes (39.2%), deli meats (36.0%), and ethnic foods (22.5%) were least preferred.

TABLE 1 Basic Demographics

Characteristics	Total (n=2,024) N (%) or mean±*SD*
Gender, %	
Female	74.7
Age, years	76.9±9.2
60–69, %	25.3
70–79	32.6
80 & older	42.1
Race, %	
Caucasian	60.9
African American	39.1
Venues for the meal program, %	
Senior center	51.8
Senior building	16.4
Church, other	3.5
At my home	29.1
Years with meal program, %	
0–5	66.6
6–10	19.7
11 & more	13.7
How often use the meal program?, %	
Daily	43.8
Weekly	36.8
Monthly or occasionally	19.4
Health conditions, %	
Arthritis	49.1
Diabetes	28.8
Fluid problem	10.6
Heart disease	21.9
Hypertension	40.3
Osteoporosis	10.6
Number of diseases, %	
0	15.1
1–2	58.2
3 & more	26.7
Special diet, %	
Yes	17.5
General impression of the meals (Good or Great), %	
Taste	51.6
Appearance	59.8
Variety	50.2
Temperature	57.3
Portion	58.9

When food preferences were compared by race/ethnicity and gender, Caucasian males showed the highest percentages of preference within most of the food groups. On the other hand, African Americans had lower percentages for most of the food groups, compared to their Caucasian counterparts. Regardless of race/ethnicity, bivariate comparison of food preferences based on gender showed that some foods—including potatoes, meat, canned

TABLE 2 Responses to a Question According to Ethnicity and Gender to the Question, "I Like Eating These Foods"

"I like eating these foods," %	Total	Caucasian		African American		*P* value*
		Male	Female	Male	Female	
Fresh fruit	80.1	82.4	82.6	70.8	77.8	0.002
Chicken	75.5	77.3	76.8	69.5	74.3	NS
Soup	74.0	77.3	74.4	68.8	72.7	NS
Salad	73.5	75.2	76.0	60.4	72.2	0.001
Vegetables	72.0	76.4	73.6	64.9	68.9	0.013
Potatoes	67.2	72.4	68.9	67.5	61.5	0.003
Meat	59.9	73.6	62.4	60.4	48.4	0.000
Sandwiches	49.9	57.6	52.0	47.4	43.2	0.000
Pasta	49.2	57.6	55.8	35.1	38.5	0.000
Canned fruit	48.9	60.6	47.1	51.9	44.1	0.000
Legumes	39.2	50.6	38.8	45.5	31.4	0.000
Deli meats	36.0	48.5	35.4	42.9	27.8	0.000
Ethnic foods	22.5	28.2	20.5	26.6	21.2	0.017

Note. *$P<0.05$ (comparing four groups, Caucasian male, Caucasian female, African American male, and African American female).

fruit, legumes, and deli meats—were more preferred by males than females, while other foods—including fresh fruit and salads—were more preferred by females than males.

Relative Odds Ratios of Food Preferences Adjusted by Other Variables

Using logistic regression, the dependent variables (preferences of 13 food groups) were regressed on a number of independent variables. Table 3 presents the relative odds ratios of food preferences adjusted by other variables including gender, age, race, length and frequency of program participation, and chronic disease status. After adjusting for other variables, the male older adults were significantly more likely to prefer deli meats (odd ratios [OR]=1.66; 95% confidence interval [CI]=1.33 to 2.06), meat (OR=1.64; 95% CI=1.30 to 2.06), legumes (OR=1.61; 95% CI=1.30 to 2.00), canned fruit (OR=1.56; 95% CI=1.26 to 1.94), and ethnic foods (OR=1.41; 95% CI=1.10 to 1.80) compared to female older adults.

Also, compared with African Americans, Caucasians demonstrated significantly higher preferences for 9 of 13 food groups including pasta (OR=2.02; 95% CI=1.65 to 2.46), meat (OR=1.73; 95% CI=1.42 to 2.12), fresh fruit (OR=1.50; 95% CI=1.18 to 1.91), sandwiches (OR=1.43; 95% CI=1.18 to 1.74), salad (OR=1.33; 95% CI=1.07 to 1.65), legumes (OR=1.29; 95% CI=1.06 to 1.58), vegetables (OR=1.26; 95% CI=1.01 to 1.56), deli meat (OR=1.26; 95% CI=1.03 to 1.55), and potatoes (OR=1.25; 95% CI=1.02 to 1.53).

TABLE 3 Adjusted Odd Ratios of Food Preference Adjusted by Baseline Variables

	Adjusted Relative Odds Ratio [95% Confidence Interval]							
	Gender	Age	Race	Length of participation	How often used	Heart disease	Diabetes	Hypertension
Salad	0.79 [0.62–1.01]	0.99 [0.98–1.00]	**1.33*** [1.07–1.65]	1.05 [0.84–1.32]	1.01 [0.84–1.32]	1.12 [0.86–1.46]	1.01 [0.80–1.29]	1.04 [0.84–1.30]
Soup	1.07 [0.84–1.37]	1.01 [1.00–1.02]	1.12 [0.90–1.40]	0.89 [0.70–1.12]	**1.38*** [1.11–1.71]	1.14 [0.87–1.48]	1.10 [0.86–1.40]	0.94 [0.75–1.17]
Vegetables	1.01 [0.79–1.28]	1.00 [0.99–1.01]	**1.26*** [1.01–1.56]	0.97 [0.77–1.21]	**1.26*** [1.02–1.56]	**1.43*** [1.10–1.87]	0.95 [0.75–1.21]	0.95 [0.76–1.18]
Legumes	**1.61*** [1.30–2.00]	0.99 [0.98–1.01]	**1.29*** [1.06–1.58]	1.08 [0.88–1.33]	**1.29*** [1.06–1.56]	1.26 [0.98–1.58]	1.09 [0.88–1.35]	1.06 [0.87–1.29]
Fresh fruit	0.86 [0.66–1.12]	1.00 [0.98–1.01]	**1.50*** [1.18–1.91]	1.07 [0.84–1.38]	1.11 [0.87–1.40]	1.15 [0.85–1.54]	**1.37*** [1.04–1.80]	1.00 [0.78–1.28]
Canned fruit	**1.56*** [1.26–1.94]	1.01 [1.00–1.02]	1.11 [0.92–1.35]	1.07 [0.88–1.31]	**1.43*** [1.19–1.73]	**1.36*** [1.08–1.71]	1.06 [0.86–1.31]	1.03 [0.85–1.25]
Pasta	0.91 [0.73–1.13]	0.99 [0.98–1.00]	**2.02*** [1.65–2.46]	1.19 [0.97–1.46]	**1.33*** [1.10–1.61]	1.23 [0.98–1.54]	0.86 [0.69–1.06]	1.02 [0.84–1.24]
Potatoes	1.18 [0.94–1.49]	1.01 [0.99–1.02]	**1.25*** [1.02–1.53]	1.13 [0.91–1.39]	**1.40*** [1.15–1.72]	1.19 [0.93–1.52]	1.18 [0.94–1.48]	1.07 [0.87–1.31]
Deli meats	**1.66*** [1.33–2.06]	1.00 [0.99–1.01]	**1.26*** [1.03–1.55]	**1.34*** [1.09–1.66]	**1.37*** [1.13–1.67]	1.01 [0.80–1.28]	1.16 [0.93–1.44]	0.84 [0.69–1.03]
Ethnic foods	**1.41*** [1.10–1.80]	0.98 [0.97–1.00]	1.00 [0.79–1.26]	0.89 [0.70–1.13]	0.98 [0.78–1.22]	1.00 [0.76–1.31]	1.04 [0.81–1.33]	1.09 [0.86–1.36]
Sandwiches	1.23 [0.99–1.53]	1.00 [0.99–1.01]	**1.43*** [1.18–1.74]	1.20 [0.98–1.48]	0.98 [0.81–1.18]	1.08 [0.86–1.36]	**1.24*** [1.00–1.53]	0.97 [0.80–1.18]
Meat	**1.64*** [1.30–2.06]	1.00 [0.99–1.02]	**1.73*** [1.42–2.12]	1.06 [0.86–1.30]	**1.51*** [1.24–1.83]	0.87 [0.69–1.10]	1.23 [0.99–1.53]	0.94 [0.77–1.14]
Chicken	0.91 [0.71–1.17]	1.01 [1.00–1.02]	1.20 [0.96–1.50]	1.23 [0.98–1.55]	1.12 [0.90–1.40]	0.94 [0.72–1.22]	0.84 [0.66–1.06]	1.16 [0.92–1.45]

Note. *$P < 0.05$.

**Female, African Americans, occasional participant, no heart disease, no diabetes, no hypertension (reference group).

Food preference responses also varied according to the frequency of program participation and participants' chronic disease status. The older adults who participated in the program on a daily basis were statistically significantly more likely to prefer some foods including soups, vegetables, legumes, canned fruit, pasta, potatoes, deli meats, and meat compared to occasional participants. Individuals who have heart disease significantly prefer vegetables and canned fruits whereas fresh fruit and sandwiches were preferred by the older adults with diabetes.

Overall, food preferences varied depending on gender, race/ethnicity, and the frequency of program participation. In the present study, males, Caucasians, and daily program participants tended to prefer some of the foods offered by the nutrition programs compared to females, African Americans, and occasional program participants.

Specific Requests for Future Menu

To improve the quality of the nutritional programs, and to extend the variety of food items offered, the participants were asked to list what they would like to have been offered. A total of 784 older adults responded to this question, and listed multiple foods to have been offered. A total of 29.3% of the responding older adults ranked seafood as the first food item to be offered followed by a variety of vegetables/salad (11.4%); poultry including chicken, fried chicken, and turkey (11.4%); and a variety of meats such as steak, roast beef, and spare ribs (10.6%). Also, desserts (ice cream, cookies, Jell-O, puddings) and different types of Italian cuisine (spaghetti with meat balls, lasagna, and pasta) were requested by 6.7% and 5.9% of the older adults, respectively. In addition to these additional food items, the participants mentioned specific details related to cooking methods ("do not overcook vegetables, firmer veggies," "pasta that is not mushy"). In a question asking what food they would like to have been offered, African American older adults mentioned some traditional ethnic cuisines such as hog feet, chitterlings, or traditional festive foods including fried chicken and macaroni and cheese. Given the fact that the SNP often provides the latter items, African American older adults appear to request more frequent offering of these foods.

DISCUSSION

With aging, there are increased barriers to food intake, including changing food preferences (15). However, food preferences of older adults have been rarely reported. In this study, we have examined food preferences of the SNP participants and explored how food preferences varied depending on gender and ethnic group. The study findings showed that about 85% of the participating older adults suffered from at least one chronic disease including

arthritis (48.6%), hypertension (39.4%), and diabetes (28.7%). In contrast to the high prevalence of chronic diseases, only 17.5% of the participants were on a special diet. In this context, the SNPs have a great potential to facilitate active nutritional education sessions for the older adults to deliver information regarding how balanced nutrition is related to the management and care of chronic diseases.

The findings also presented that some food groups including fresh fruit, chicken, soup, salad, and vegetables were preferred by most older adults. On the other hand, ethnic foods, deli meats, and legumes were least preferred. In this study, gender and racial, ethnic differences existed in food preferences. Males significantly preferred meats, deli meats, and legumes compared to females. Previous studies have also revealed that meat, beans, and lentils are the foods associated with greater preferences and consumption in males while vegetables and fruits are the foods associated with females (16, 17). Food preferences for a variety of foods are somewhat related to better diet quality, and it is reported that poor diet quality is more prevalent among female older adults (14). So, the meal programs need to put forth additional efforts to expand the diversity of food intakes among female older adults by developing new recipes and emphasizing nutritional benefits of diet variety. For older males, tailored nutrition education relevant to their dietary pattern such as choosing lean meat and healthy fat foods might be beneficial.

In this study, African Americans were less likely to prefer most foods offered by the meal programs compared with Caucasians. Although food preference is an important factor affecting dietary intake in the elderly population, it should be considered in the context of health benefits of diet. Some African Americans' traditional cuisine called soul food makes it difficult to manage diet-related chronic diseases because it is often characterized as high in fat, calories, and sodium, and low in fruit and vegetables (18). To address dietary preference of this ethnic group while considering nutritional benefit, there have been approaches that tailor the food preferences of this population to meet the Dietary Guidelines (19). Given that the prevalence of diet-related chronic diseases is very high in the older adult population, particularly in African American older adults, offering nutrition education specifically tailored to the group or healthy alternatives to replace traditional soul foods are other aspect to consider. African American older adults tend to be aware of the necessity of dietary change to address their diseases (20) and awareness of the need to dietary change is likely to lead to high levels of acceptance of healthy alternatives of their ethnic cuisines. Also, the ENP has the capacity to provide a tailored nutrition education to participating older adults because it has offered nutrition assessments, health screening, and physical activity programs in addition to meals (21). In addition, older adults are likely to change their food preferences if necessary. For example, realizations of health issues, food beliefs, and long-term benefits of healthy diets make older adults change their dietary patterns and food preference (22–24).

To improve the quality of the nutritional programs, and to extend the variety of food items, future menu items the participants would like to have been offered were asked. In the present study, seafood was ranked as the first item of choice followed by vegetables/salad; poultry including chicken, fried chicken and turkey; and a variety of meats such as steak, roast beef, and spare ribs. The meal program is designed to provide nutritious meals at low cost. Although some menu requests cannot be reflected in future menu plans due to the limited funds for the meal program, cost-effective strategies throughout the food purchasing process, preparation, and storage could be considered. Also, shorter cooking times and appropriate preparation methods for some vegetables and pastas were frequently requested by the older adults. The process of food being cooked at a certain site, then delivered to each distribution site and re-heated again, may be the root of the problem. Further examination regarding cooking methods needs to be considered. As suggested by Prothro and colleagues (26), periodic solicitation to assess food preferences, to improve the quality of the meal programs, and to consider future menu requests is a feasible strategy to increase program compliance of the participants. Since food "pickiness" can result in having more restrictive diet in some older adults and these restrictive diets might increase the risk for malnutrition (25), incorporating the food preferred by older adults is one of possible ways to increase food intake of older adults.

This study has some limitations. Some covariates affecting food preference, diet quality, and food intakes in the older adult population were not included in the present study. Also, there are 19 AAAs in Maryland, and half of the AAAs participated in the survey. More extensive information gathering and analysis would have increased the generalizability of the findings. The present study examined food preferences using food groups rather than specific food items. Future studies can consider assessing which food items are specifically liked or disliked by the participating elders.

Despite these limitations, the findings of the present study are the fruits of a collaborative effort among key decision-makers who exert direct influence on menu planning for the SNPs, program participants, and academia. Although the food groups surveyed in the present study were general, the results would also inform other senior centers of general direction of menu planning and nutrition education according to gender and ethnicity. In addition, the present study provides an opportunity to clarify next steps in improving the quality of older adult nutrition programs and thus the nutritional status of older adults.

TAKE AWAY POINTS

- The quality of nutrition programs for the older adult population is important to improve diet of older adults. Preferences for a variety of foods are somewhat related to better diet quality, but food preferences of older adults have been rarely reported.

- Gender and racial, ethnic differences existed in food preferences. Periodic solicitation to assess food preferences, to improve the quality of the meal programs, and to consider future menu requests is a feasible strategy to increase program compliance of the participants.
- Although food preference is an important factor affecting dietary intake in the older adult population, it should be considered in the context of health benefits of diet. The Elderly Nutrition Program have a great potential to facilitate active nutritional education sessions for older adults to deliver information regarding how balanced nutrition is related to the management and care of chronic diseases.

ACKNOWLEDGMENTS

The authors wish to thank all members of the Maryland Association of Senior Nutrition Programs members, including Nutrition Standards Workgroup including Lisa Furlow, Renee Kniseley, Rona Martiyan, Karla Beardsley, Michelle Feng, Kay Brench, Susan Shelton, Jeanne Gourley for their input into the survey, distribution of the survey, and guidance in the creation of the new Menu Policies. Also, the authors appreciate Dr. Patzy Ezell and Theresa McCoy at the University of Maryland Extension for their advice and support during this work. The authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

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